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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/758,330

01/15/2004

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I69.12-0614

6390

164 7590 07/17/2008  
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EXAMINER

KAYRISH, MATTHEW

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

07/17/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/758,330	<b>Applicant(s)</b> KORKOWSKI ET AL.	
	<b>Examiner</b> MATTHEW G. KAYRISH	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, filed on 4/2/2008, have been considered, but they are moot in view of the new grounds of rejection.

Regarding the arguments that Bauck fails to disclose wherein the endcap or shield is disclosed on an opposite side of the actuator arm from the load beam, this is true, however, Lin et al (US Patent Number 6961218) discloses a shield for regulating air flow which helps to reduce vibrations, as stated in column 5, lines 8-26 & 42-54. As can be seen in figure 6, this shield is disposed on an opposite side of the actuator from the load beam. For this reason, claims 1 and 11 remain rejected.

Claims 1, 11, 12, 15 and 19 have been amended. Claims 1 and 3-21 remain pending.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-8, 11-13 and 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauck et al (US Patent Number 4189759), in view of Lin et al (US Patent Number 6961218).

Regarding claim 1, Bauck discloses:

An endcap for use on an actuator arm carrying a single head gimbal assembly that includes a load beam (figure 2, item 26), wherein the endcap provides balance (column 8, lines 32-38), the endcap comprising:

A body (figure 2, item 24) of the endcap connected to the actuator arm (figure 2, items 52 & 54 are connected via items 112 & 114); and

A shielding feature extending from the body in a cantilevered configuration (figure 2, items 122 & 124) for reducing windage excitation of the head gimbal assembly (columns 10 & 12, lines 18-24 & 28-39).

Bauck fails to specifically disclose:

Wherein the endcap is connected to the end of the actuator arm;

A body of the endcap connected to the actuator arm at a side of the actuator facing away from the load beam.

Lin discloses:

An endcap (figure 6, item 165; column 5, lines 11-12) for use on an actuator arm carrying a single head gimbal assembly (figure 6, item 110) that includes a load beam

(figure 6, item 166), wherein the endcap is connected to a an end of the actuator arm to provide balancing (column 5, lines 8-26 & 42-54), the endcap comprising:

A body of the endcap (figure 6, item 165) connected to the actuator arm at a side of the actuator facing away from the load beam (figure 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Buck with an endcap connected to the end of the actuator arm on the opposite side of the arm from the load beam, as taught by Lin, because this is a matter of placement of parts which will still function similarly.

Regarding claim 3, Bauck and Lin disclose the features of base claim 1, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein the shielding feature includes a balancing portion (figure 2, item 131) and a shielding portion (figure 2, item 120).

Regarding claim 4, Bauck and Lin disclose the features of base claim 3, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein the shielding feature is not connected to the actuator arm (figure 2, item 120 is not in contact with the actuator arm).

Regarding claim 5, Bauck and Lin disclose the features of base claim 3, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein the balancing portion is shaped so the endcap is symmetric with respect to the shielding portion and the balancing portion (figure 2, items 120 & 131 are symmetrically split by action line [130]).

Regarding claim 6, Bauck and Lin disclose the features of base claim 1, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein the shielding feature is structured to divert airflow proximate to a portion of the head gimbal assembly that experiences windage excitation (figure 7, column 12, lines 27-39).

Regarding claim 7, Bauck and Lin disclose the features of base claim 6, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein the shield is structured to divert airflow away from a windward side of the head gimbal assembly (column 10, lines 18-24).

Regarding claim 8, Bauck and Lin disclose the features of base claim 1, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein the head gimbal assembly further comprises a load beam (figure 2, item 26), a gimbal (figure 2, item 76), a transducing head (figure 2, item 58), and a flexible interconnect circuit (column 3, lines 48-59), and wherein the shielding feature is structured to divert an airflow proximate to a critical portion of the flexible interconnect circuit (figure 7).

Regarding claim 11, Bauck and Lin disclose the features of claim 11 that are in common with those previously disclosed in claim 1, as stated in the 103 rejection above, and Bauck further disclosing:

A head actuation system comprising:

An actuator arm (figure 2, items 52 & 54);

A head gimbal assembly (figure 2, item 62 & 76) for carrying a transducing head (figure 2, item 58), the head gimbal assembly having a load beam (figure 2, item 26) connected to a first side of the actuator arm (figure 3, via items 102, 104, 106 & 108); and

A shield (figure 2, item 24) having a first portion attached to the actuator arm (figure 2, items 112 & 114) and a second cantilevered portion (figure 2, items 120 on right and left) for reducing airflow excitation of the head gimbal assembly (columns 10, 11 & 12, lines 18-24, 10-18 & 31-34).

Regarding claim 12, Bauck and Lin disclose the features of base claim 11, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein the shield is attached to a first end of the load beam (figure 2), and wherein the head gimbal assembly comprises:

A flexible interconnect circuit adjacent to the load beam (column 3, lines 48-59) and electrically connected to the transducing head (column 3, lines 48-59);

A gimbal attached to a second end of the load beam (figure 2, item 76); and

A slider supported by the gimbal (figure 2, item 76 supports 58), the slider disposed to support the transducing head (figure 2, item 58 supports item 84).

Regarding claim 13, Bauck and Lin disclose the features of base claim 11, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein the shield is an endcap (figure 2, item 24 attaches to item 22 to form an endcap) wherein the first portion of the shield is a body of the endcap (figure 2, items

112 & 114 are the connecting bodies of the endcap) and the second portion of the shield is a symmetrical protrusion from the body of the endcap (figure 3, items 122 & 124 are symmetrical).

Regarding claim 15, Bauck and Lin disclose the features of base claim 11, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein the shield is an endcap connected to an end of the actuator arm to provide balancing (column 8, lines 32-38), the endcap having a body (figure 2, items 112 & 114) and a plurality of protrusions from the body (figure 2, items 122 & 124).

Regarding claim 16, Bauck and Lin disclose the features of base claim 15, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein the endcap is symmetrical with respect to an axis extending along a center length of the load beam (figure 2, items 122 & 124 are symmetrical with item 130).

Regarding claim 17, Bauck and Lin disclose the features of base claim 16, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein the protrusions form substantially a "C" shape (figure 3, the protrusions [24] meet at the end of item 26 to form a "C").

Regarding claim 18, Bauck and Lin disclose the features of base claim 17, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein at least one of the plurality of protrusions has a first portion (figure 2, items 120) and a distal portion (figure 2, item 110), the first portion defines a plane, and



the distal portion defines another plane (figure 2, items 120 & 110 are within two separate planes).

Regarding claim 19, Bauck and Lin disclose the features of claim 19 that are in common with those previously disclosed in claims 11, 12 and 13, as stated in the 103 rejections above, and Bauck further disclosing:

A rotatable magnetic disc (figure 7, items 140), wherein the first side of the actuator arm is arranged to face the rotatable magnetic disc (figure 7, both first and second sides are capable of facing the magnetic disk).

Bauck fails to specifically disclose:

A rotatable actuator arm.

Lin discloses:

A rotatable actuator arm (column 4, lines 13-14);

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the arm of Bauck rotatable, as taught by Lin, because this is very well known in actuator arms.

Regarding claim 20, Bauck and Lin disclose the features of base claim 19, as stated in the 103 rejection above, Bauck further disclosing:

Wherein the symmetrically balanced shape feature is disposed proximate to an excitable portion of the head gimbal assembly (figure 2, items 24 meet in an area near the HGA at item 110) to control excitation of the head gimbal assembly caused by

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airflow generated by rotating the magnetic disc (columns 10, 11 & 12, lines 18-24, 10-18 & 31-34).

Regarding claim 21, Bauck and Lin disclose the features of base claim 1, as stated in the 103 rejection above, and Bauck further disclosing:

Wherein a portion of the head gimbal assembly defines a first plane (figure 4, plane through the bottom edge of item 58) and the shielding feature of the endcap defines a second plane that is arranged substantially parallel to and spaced from the first plane (figure 4, plane through item 126 is parallel and spaced from the first plane).

4. Claims 9, 10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauck et al and Lin et al, as applied to claims 1 and 11 above, in view of Nagahiro et al (US PG-Pub 2003/0218833).

Regarding claims 9 and 10, Bauck and Lin disclose the features of base claim 1, as stated in the 103 rejection above, but fails to specifically disclose:

Wherein the endcap is disposed in relation to an X, Y and Z coordinate system, wherein an airflow in a substantially Z/Y direction causes excitation of the head gimbal assembly, the shielding feature having a shape disposed in an X-Y/X-Z plane for controlling the airflow, wherein the substantially X-Y/Y-Z plane is defined substantially parallel to the actuator arm/an axis of rotation of the actuator arm.

Nagahiro discloses:

An endcap for use on an actuator arm carrying a single head gimbal assembly, the endcap comprising:

A body (figure 2, item 13); and

A shielding feature (figure 2, item 12) extending from the body for reducing windage excitation of the head gimbal assembly (page 1, paragraph 15).

Wherein the endcap is disposed in relation to an X, Y and Z coordinate system, wherein an airflow in a substantially Z/Y (out-plane direction/in-plane direction) direction causes excitation of the head gimbal assembly (paragraph 49 & 69), the shielding feature having a shape disposed in an X-Y/X-Z plane (shielding feature device has a 3 dimensional shape) for controlling the airflow (figure 2, item 12), wherein the substantially X-Y/Y-Z plane is defined substantially parallel to the actuator arm/an axis of rotation of the actuator arm (paragraph 49).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the shielding system of Bauck with a damping system, as taught by Nagahiro, because this will provide for multi-dimensional damping which will provide a more stable slider, as noted in paragraphs 48 & 49.

Regarding claim 14, Bauck and Lin disclose the features of base claim 13, as stated in the 103 rejection above, but fails to specifically disclose:

Wherein the protrusion is T-shaped.

Nagahiro discloses:

Wherein the protrusion is T-shaped (figure 2, item 12 is T-shaped).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a T-shaped shield member on the load beam of Bauck, as taught by Nagahiro, because this will bridge the load beam, providing it with rigidity to maintain its length, as stated in paragraphs 36 and 37.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW G. KAYRISH whose telephone number is (571)272-4220. The examiner can normally be reached on 8am - 5pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew G. Kayrish  
/M. G. K./  
Examiner, Art Unit 2627  
7/6/2008

**/Brian E. Miller/  
Primary Examiner, Art Unit 2627**